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November 30, 1998

The Secretary
Federal Communications Commission
1919 M Street
Washington, DC 20554

Dear Sirs:

Please find enclosed an original, plus five copies each, for each of the following filings:

- 1) my personal comments in WT Docket No. 98-143 /
- 2) the comments of No Code International ("NCI") in the same proceeding, as approved by the Board of Directors of NCI

These paper copies are courtesy copies for your records and for each of the Commissioners.

These comments were filed electronically through the ECFS and a copy of the receipt printed after the ECFS transaction is enclosed with each set of comments.

Thank you for the opportunity to participate in this rulemaking proceeding,



Carl R. Stevenson – WA6VSE

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FCC MAIL ROOM**The FCC Acknowledges Receipt of Comments From ...****Carl R. Stevenson, WA6VSE****...and Thank You for Your Comments****Your Confirmation Number is: '19981130147164 ' 1****Date Received: Nov 30 1998****Docket: 98-143****Number of Files Transmitted: 1**

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Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of)	WT Docket No. 98-143
)	
1998 Biennial Regulatory Review --)	RM-9148
Amendment of Part 97 of the Commission's)	RM-9150
Amateur Service Rules.)	RM-9196
)	

To: The Secretary,
Federal Communications Commission

cc: Chairman William E. Kennard
Commissioner Susan Ness
Commissioner Michael Powell
Commissioner Harold Furchgott-Roth
Commissioner Gloria Tristani

COMMENTS OF CARL R. STEVENSON, WA6VSE

I, Carl R. Stevenson, hereby submit my comments in the above-captioned proceeding in hopes that they will in some small way help to prompt the Commission will take the sorely-needed steps to modernize the Amateur Radio Service ("ARS") to align the ARS with the technical realities of today's world and assure that the ARS is capable of moving forward into the coming century as a valuable public resource, rather than merely a museum of radio antiquity.

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I. INTRODUCTION

1. I have been an RF communications systems engineer and RF equipment designer by profession for over 26 years, as well as a licensed amateur since 1975 (callsign WA6VSE).
2. I am also one of ten members of the board of directors of No Code International ("NCI") and a member of the American Radio Relay League ("ARRL"), the Radio Club of America ("RCA"), and the Institute of Electrical and Electronics Engineers ("IEEE").
3. I have also won a NASA Technical Innovation Award and hold, and currently have pending, numerous patents in the areas of radio communications systems, modulation and coding techniques, and related technologies.
4. In my professional capacity as an employee or consultant to entities such as NASA, Rockwell International, Hughes Aircraft, and Loral Corporation, I have participated in key roles in the design of some of the most modern and sophisticated communications systems fielded by the US Federal Government in the past 20 years.
5. However, despite my extensive professional experience in the area of HF/VHF/UHF and microwave radio communications systems and equipment design, I am deemed, under the Commission's current, outdated ARS licensing structure and Rules to be "unqualified" to operate in the bands below 30 MHz¹, on the basis that I have no interest in the use of Morse code and have not demonstrated Morse proficiency at the completely arbitrary rate of 13 or 20 words per minute.
6. I am an interested party in this proceeding.

¹ (with the exception of the several modest, Morse-only segments commonly referred to as "the Novice CW bands" and a small sliver in the 10m band where Technician Plus licensees are permitted to use single sideband voice transmissions and digital modes such as packet radio, none of which provide much practical utility or opportunity for experimentation.)

II. EXECUTIVE SUMMARY

7. I am very concerned that, without long-overdue modernization of the Commission's Rules governing the ARS, the future health and ability of the ARS to fully serve the public is at serious risk.

8. This Rulemaking Proceeding presents the Commission with an important opportunity to restructure and redirect the ARS in ways that will revitalize it and realign it with the technical realities of today's world. Such revitalization and realignment are absolutely necessary to assure that the ARS will be capable of meeting its public service and technical training objectives² in the future.

9. I believe that the Commission has a compelling public interest mandate, both to maintain a healthy Amateur Radio Service, and to eliminate, to the maximum extent possible, unnecessary or arbitrary rules that limit access to, full participation in, and freedom of experimentation in, the ARS. Such changes will both prepare and permit the ARS to move forward into the 21st Century as a valuable public service and technical training asset to the nation.

10. The Commission's rules for the ARS are badly in need of updating in many areas. Many current regulations and requirements are merely vestiges of the early days of radio technology and radio regulation. These must be eliminated for the good of the ARS, despite protests to the contrary by traditionalists. Such vestiges of decades long past serve no useful or legitimate regulatory purpose and are at odds with the Commission's mandate to regulate the use of the spectrum in accordance with the public interest, convenience, and necessity.

11. I encourage the Commission to modernize its Rules for the ARS in ways that will permit and encourage amateur radio to catch up with today's technological world; facilitate and encourage wider participation by technically qualified individuals; and encourage, rather than

² As outlined in §97.1 of the Commission's Rules, entitled "Basis and Purpose".

discourage and impede, the sort of experimentation and innovation which used to be the cornerstone of the ARS.

12. To that end, I recommend that the Commission immediately:

- a. eliminate, to the maximum extent possible, Morse testing as a requirement for all amateur licenses,³
- b. reduce the number of license classes to no more than three, and
- c. review the privileges afforded to each license class and make certain that all test requirements for each license class rationally relate to the privileges the licensee receives by virtue of passing the test.

13. In the interest of continuity with the present licensing structure, study guides, and testing materials, I recommend that the three license classes be called "Technician," "General," and "Extra." This will permit a practical combination of existing study guides and testing materials to be used until such time as such materials are revised and will result in reasonable tests for the three new classes of license contemplated in these comments.

14. I recommend that the transition to the new license structure be accomplished in the following manner:

- a. existing Technician class licensees should remain as "Technician" class licensees, until they upgrade by passing the necessary elements for the new "General" class,
- b. existing Novice licensees should be permitted to upgrade to the new "General" class license by taking the additional written elements necessary for that class,

³ In no event should there be a Morse test requirement of more than 5 wpm for all license classes conveying privileges in the bands below 30 MHz, and then only until S25.5 is removed from the ITU Radio Regulations.

- c. existing "old" Technician Plus licensees (those who have previously passed the full General written examination) should be grandfathered to the new "General" class,
- d. existing "new" Technician Plus licensees (who have not taken the full General class written examination) should be able to upgrade to the new "General" class by taking the additional written test element necessary for the existing General class, and
- e. existing Advanced class licensees should be permitted to upgrade to the new "Extra" class license by taking the additional written elements necessary for that class.
- f. Finally, existing Novice, "new" Technician Plus, and Advanced class licensees needing to take additional written element(s) to upgrade to the new General or Extra class should be afforded an interval of at least two years from the effective date of such new Rules to pass the necessary upgrade test element(s) and should retain their current class of license and all current privileges in the interim. This would afford ample opportunity for all who desire to upgrade, would assure that nobody is unfairly deprived of earned privileges, yet would totally eliminate the Commission's administrative overhead associated with the Novice, Technician Plus, and Advanced classes in a relatively short period of time.

15. I further recommend and request that the Commission direct the Wireless Telecommunications Bureau to commence a Notice of Inquiry seeking comment from the public on what portions of Part 97's technical and operational regulations constitute unnecessary barriers to technical advancement and experimentation in the ARS in light of today's technology.⁴ *This NOI should be treated as a separate proceeding with its own longer timetable so as not to interfere with the rapid resolution of the very important issues under consideration in the instant Proceeding.*

⁴ The recommended NOI is needed to address matters of a technical nature (occupied bandwidth restrictions, baud rate limitations, etc.) which currently unnecessarily hamstring experimentation with new modes and technologies which could greatly increase the utility, reliability, and spectral efficiency of amateur operations... particularly in the bands below 440 MHz.

16. My rationale for these recommendations is elaborated in the following sections of these comments.

III. MORSE CODE REQUIREMENTS SHOULD BE ELIMINATED FROM PART 97

17. The long-outdated requirement for Morse code proficiency for access to the bands below 30 MHz is the single most glaring example of the ARS rules being "stuck in the dark ages."⁵

18. Morse code testing requirements are an outdated, unnecessary, arbitrary, and discriminatory⁶ barrier to full participation by otherwise fully-qualified applicants in the ARS and should be dropped completely from the Commission's Rules at the earliest possible date.

19. If the Commission finds it necessary to retain a Morse code test to maintain interim compliance with Section S25.5 of the ITU Radio Regulations,⁷ then a single Morse test at no more than five words per minute should be employed for all classes of license where S25.5 applies.⁸ Furthermore, the wording of such new Rules should include a "sunset clause"

⁵ However, it is by no means the only area where Part 97 needs revisions to catch up with the technological realities of today's world. This is why I recommend a separate NOI to permit the Commission and the amateur community to begin dealing with the assorted technical anachronisms in Part 97, which unnecessarily inhibit experimentation and adoption of new techniques and technologies, contrary to §97.1's clear emphasis on the importance of such pursuits.

⁶ For an explanation of why I believe Morse requirements are discriminatory, see ¶ 20-22 herein.

⁷ S25.5 will be most likely be deleted from the ITU Radio Regulations at a WRC in 2001, if not 2000. There is a great deal of support building on the international front to eliminate Morse testing as a requirement for operation in the bands below 30 MHz. In fact, a number of other administrations have already reduced or eliminated Morse code test requirements or are considering the establishment of license classes with full access to the bands below 30 MHz with reduced or no Morse test requirements.

⁸ S25.5 only applies to license classes granting permission to operate in the bands below 30 MHz.

stipulating that all Morse code testing will automatically end immediately upon the removal of the S25.5 requirement from the ITU Radio Regulations.⁹

20. When I refer to Morse testing as discriminatory, I am referring to the fact that the ability to learn to decode Morse code by ear varies widely among the general population. Just as some people are musically inclined and others "can't carry a tune in a bucket," some people find Morse easy to learn, while others simply can't master it no matter how hard or for how long they try (particularly at the faster 13 wpm and 20 wpm rates).

21. Since Morse is used purely by operator choice and its use is not mandatory, Morse is virtually never used in emergency/disaster communications, and Morse capabilities are not considered a viable alternative by the vast majority of emergency management authorities, employing Morse as a licensing requirement is unnecessary and thus discriminates against those who, for whatever reason, lack the ability to gain the arbitrarily specified level of proficiency or even simply find that Morse code is irrelevant to their interests in amateur radio.

22. Additionally, the mere existence of "handicapped waivers" [§97.505(a)(10)(i)] for the current 13 wpm and 20 wpm tests clearly demonstrates that Morse proficiency at those levels is a completely arbitrary "requirement," irrelevant to the privileges conveyed by those classes of license, and undeserving of being maintained in the Commission's rules at all. If, rather than being purely arbitrary, the high speed Morse "requirements" were truly necessary to the exercise of the additional privileges conveyed by the higher class licenses, it logically follows that they could not and would not be waived.¹⁰

⁹ This "sunset clause" approach will save both the Commission and the amateur community the time, effort, and expense of revisiting this issue in the near future when S25.5 has been eliminated.

¹⁰ By way of example, the Federal Aviation Administration does not issue waivers permitting blind people to obtain licenses to become airline pilots. Good vision is a necessary requirement for such licensure and thus cannot be reasonably waived.

23. Unnecessary, arbitrary barriers to entry into, and full participation in, the ARS only serve to diminish the public interest and public service value of the ARS. This diminishment has two primary components.

- a. the number of trained, experienced operators available to provide voluntary public service and emergency communications services in times of need is unnecessarily and artificially reduced, and
- b. arcane, artificial barriers to entry prompt many highly-qualified technical experts in the radio, computer, and telecommunications fields, who might otherwise be contributing members of the amateur community, to pursue other leisure interests such as computers, the internet, etc. (This second component robs the ARS of a substantial portion of what should be the core of technically competent individuals that it needs to guide and train the remainder of the amateur community.)

24. The Commission's licensing requirements for amateurs, as codified in Part 97 of its Rules, should exist only to assure that licensees have the necessary qualifications to meet the Commission's legitimate regulatory objectives, not to support or perpetuate nostalgic "tradition" from the early days of radio or any other arbitrary "requirements" which amount to "rites of passage" or "fraternity hazing rituals."

IV. THE NUMBER OF LICENSE CLASSES SHOULD BE NO MORE THAN THREE

25. Three license classes ("Technician," "General," and "Extra") are quite sufficient to provide a reasonable progression from beginner level to the highest level. Too much emphasis has been placed on "advancement," as "measured" by the class of license one holds, rather than one's actual level of technical competency, in the last several decades since the inception of "Incentive Licensing."

26. "Incentive Licensing," conceived and enacted in the 1960's may have been enacted with the best of intentions, but it has been a significant failure and has had some very negative unforeseen effects on the ARS.

27. One very negative thing that "Incentive Licensing" has done is to promote a feeling among many amateurs that an amateur license is somehow equivalent to a "graduation certificate" ... i.e., that having passed the requisite test "proves" that the licensee "knows all that's necessary to know." This has resulted in a decline in the technical competence of the average amateur as many applicant's "cram" for tests, then put away the books and concentrate on "operating" rather than continuing to learn more about how and why radios actually work.

28. It would be far better to create an environment where licenses are viewed as "permits to tinker, experiment, and learn by experience" (within the bounds of regulations, of course), rather than as "graduation certificates."

29. Another very negative effect of "Incentive Licensing" has come from the linkage of passing higher speed code tests to advancement to higher classes of license. Over the intervening three decades since the inception of "Incentive Licensing," this has forced hundreds of thousands of amateurs to work to gain high-speed Morse proficiency ... at least for long enough to pass the test ... whether they intended to ever use Morse or not. It would appear quite reasonable to estimate that, with these hundreds of thousands of amateurs licensed over the past several decades, literally tens of millions of man-hours were devoted to study and practice in order to pass high speed Morse tests. It seems reasonable to assert that the public interest would have been far better served if those amateurs had devoted those tens of millions of man-hours either to public service activities or to advancing their technical knowledge and skills ... especially in light of the fact that only a modest minority of current, fast code-tested, amateurs actually use Morse code on a regular basis.¹¹

¹¹ An ARRL survey recently found that only 26% of respondents reported using Morse "regularly," with 1% not responding, and the remainder equally split between "never" and "rarely."

30. Also, privileges granted by a license from the Commission should be rationally related to the requisite skills and knowledge for which one is tested. For example, there is fundamentally no difference between the characteristics of frequencies in the "Technician Plus" portion of the 10 m band and those in the remainder of the band ... if a "Technician Plus" is technically qualified to operate using single sideband (SSB) or various data modes (RTTY, packet, etc.) in the one portion of the band, it is absurd to assert that he is not qualified to operate in the other portions on the basis that he can't copy Morse code at the arbitrary rate of 13 wpm or greater.¹²

31. Once again, the Commission's licensing requirements, as codified in its Rules, should exist only to assure that licensees have the necessary qualifications to meet the Commission's legitimate regulatory objectives, not to support or perpetuate nostalgic "tradition" from the early days of radio or arbitrary "requirements" amounting nothing more than "rites of passage" or "fraternity hazing rituals."

¹² The same thing can be said for operation in the "General" parts of any band versus other parts of the same band which are currently reserved for "Advanced" or "Extra" class licensees. The frequencies have the same characteristics, the equipment and modes are exactly the same, yet the "General" is somehow deemed "not qualified" to operate in the "Advanced" or "Extra" sub-bands. This is equally absurd and points out the fundamental flaws inherent in the "sub-band privileges by license class" scheme created under "Incentive Licensing."

V. THE CHANGES PROPOSED ARE NEEDED TO SOLVE REAL PROBLEMS

32. To support the assertion that modernizing changes in the Commission's Rules governing the ARS are necessary, I point to a number of disturbing statistics and observations that I believe indicate corresponding adverse trends in the ARS:

- a. a marked decline, in terms of both absolute numbers and percentage of total licensees, of amateurs holding licenses which convey meaningful privileges in, and reasonable access to, the "HF" bands (the 1.8 - 30 MHz amateur allocations);
- b. an unhealthy shift in the demographics of the amateur population as evidenced by the rapidly advancing average age of amateur licensees, particularly among those holding higher class licenses;
- c. according to the Volunteer Examiner Coordinators ("VECs"), there are 50% less candidates being administered amateur radio examinations than five years ago and significantly fewer examinees are electing to upgrade to license classes which require Morse proficiency; and
- d. a general decline in average levels of technical competency in the amateur community over the past several decades, as evidenced by:
 - i. a significant decline in the percentage of licensed amateurs who are actually capable of designing, building, and maintaining or repairing even simple radio and electronic equipment;
 - ii. that many currently licensed amateurs in the higher (supposedly more technically competent) license classes lack even a basic understanding of modern communications techniques and their underlying technology; and
 - iii. that, in many cases, holders (particularly long-time holders, it seems) of higher license classes exhibit reluctance (often extreme hostility) towards the adoption of

modern technological advances in the ARS ... advances which they apparently perceive as threatening to displace their "favorite mode from the good old days."

33. I am concerned that the above-mentioned adverse trends, if not reversed, will compromise the amateur community's ability to meet the goals and purposes set forth for the Amateur Radio Service in §97.1 of the Commission's Rules.

34. I also strongly believe that these adverse trends are directly attributable to several primary causative factors:

- a. the existence of outdated, unnecessary, and arbitrary "requirements" for the demonstration of Morse proficiency;
- b. the "I passed the test, so I know all I ever need to know" mindset that "Incentive Licensing" seems to have spawned in many existing licensees; and
- c. outdated limitations in the Commission's technical and operational rules for the ARS, which unnecessarily discourage experimentation and limit the utility of modern digital modes of communications.

VI. CONCLUSION

35. Far too much emphasis has been placed on the ability to decode Morse code by ear, as well as license class as "status-symbol" or "graduation certificate," for the past three decades since the inception of "Incentive Licensing" to the detriment of what should be valued in the ARS ... advancing technical competence and a preparedness and willingness to perform public service.¹³

36. Additionally, the licensing system has grown unnecessarily cumbersome and complex, testing requirements do not align rationally with the privileges obtained by passage of the tests, and there are unnecessary, artificial, and oftentimes arbitrary barriers to entry into and full participation in the ARS.

37. All of these factors are highly detrimental to the ability of the ARS to fulfill its objectives of public service, technical training and education, and advancement of the state of the art in radio communications.

38. Eliminating Morse testing as a licensing requirement in the ARS¹⁴ and reducing the number of license classes to no more than three, as outlined above, will go a great distance

¹³ Contrary to the anticipated complaints of the "I passed the test so I know all I ever need to know crowd," this does not mean that all hams must aspire to become electronics engineers ... for an accountant, attorney, plumber, taxi driver or any other non-electronics professional to become at least moderately knowledgeable in the theory and practice of modern radio and electronics technology would certainly be "advancing his or her technical competence" ... and clearly would enhance his or her ability to perform public service in the ARS ... both of which seem to meet a reasonable interpretation of the intent of §97.1 ... it is the "I passed the test so I know all I ever need to know" attitude which seems to fail such a test.

¹⁴ (or, alternatively, reducing the Morse test requirement to not more than 5 wpm for all license classes conveying privileges in the bands below 30 MHz until S25.5 is removed from the ITU Radio Regulations, with a "sunset clause" to automatically eliminate Morse testing concurrent with the elimination of S25.5)

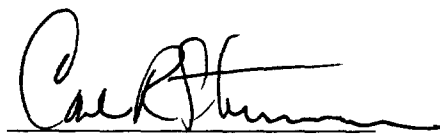
towards simplifying the licensing system, eliminating unnecessary barriers to participation, and beginning to reverse the negative trends outlined above.

39. The Commission should modify its Rules to incorporate these recommended changes with the minimum possible delay.

40. The Commission should also, either directly, or by delegation to staff of the Wireless Telecommunications Bureau, issue a supplementary statement clarifying to the entire amateur community the importance of both public service and maintaining and continuing to advance one's technical competence in the interest of avoiding stagnation of the ARS in today's world, where technology is advancing so rapidly.

41. Finally, as recommended above, the Commission should immediately direct the Wireless Telecommunications Bureau to open a comprehensive Notice of Inquiry, seeking public comment on areas where Part 97 needs further revisions to catch up with the technological realities of today's world and to begin dealing with the assortment of technical anachronisms in Part 97 which unnecessarily inhibit experimentation and adoption of new techniques and technologies in the ARS, contrary to §97.1's clear emphasis on the importance and desirability of such pursuits.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Carl R. Stevenson', written over a horizontal line.

Carl R. Stevenson, WA6VSE